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# 1 [Demonstrations: Experiencing 3D interactions in virtual reality and augmented reality](#)



Jean-Bernard Martens, Wen Qi, Dima Aliakseyeu, Arjan J. F. Kok, Robert van Liere

 November 2004 **Proceedings of the 2nd European Union symposium on Ambient intelligence EUSAI '04**

Publisher: ACM Press

 Full text available: pdf(247.07 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

We demonstrate basic 2D and 3D interactions in both a Virtual Reality (VR) system, called the Personal Space Station, and an Augmented Reality (AR) system, called the Visual Interaction Platform. Since both platforms use identical (optical) tracking hardware and software, and can run identical applications, users can experience the effect of the way the systems present their information to them (as VR or AR). Since the systems use state-of-the-art tracking technology, the users can also exper ...

**Keywords:** 3D interaction, augmented reality, human-computer interaction, natural interfaces, optical tracking, virtual reality

# 2 [Pen computing: a technology overview and a vision](#)



André Meyer

 July 1995 **ACM SIGCHI Bulletin**, Volume 27 Issue 3

Publisher: ACM Press

 Full text available: pdf(5.14 MB) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

This work gives an overview of a new technology that is attracting growing interest in public as well as in the computer industry itself. The visible difference from other technologies is in the use of a pen or pencil as the primary means of interaction between a user and a machine, picking up the familiar pen and paper interface metaphor. From this follows a set of consequences that will be analyzed and put into context with other emerging technologies and visions. Starting with a short historic ...

# 3 [Graf/Pen](#)



Albert L. Whetstone

 October 1969 **Proceedings of the first ACM symposium on Problems in the optimization of data communications systems**

Publisher: ACM Press

 Full text available: pdf(282.93 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

The Graf/Pen is a digitizing or data gathering device in which the operator simply holds a


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### 1 [An affordable optical head tracking system for desktop VR/AR systems](#)



Jurriaan D. Mulder, Jack Jansen, Arjen van Rhijn

 May 2003 **Proceedings of the workshop on Virtual environments 2003 EGVE '03**

Publisher: ACM Press

Full text available: pdf(1.62 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present an affordable optical head tracking system for desktop-like VR/AR environments. The generic and specific head tracking requirements for these type of environments are defined, as well as the relaxations such environments put on head tracking systems. The presented head tracker is based on two low-cost, commodity FireWire cameras that track a simple 3D dot pattern. It is shown that the tracker provides high accuracy, an update rate of 30 updates per second, a low computational load, and ...

**Keywords:** desktop virtual and augmented reality, optical head tracking

### 2 [Search space reduction in optical tracking](#)



Robert van Liere, Arjen van Rhijn

 May 2003 **Proceedings of the workshop on Virtual environments 2003 EGVE '03**

Publisher: ACM Press

Full text available: pdf(1.29 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper we present a practical method for reducing the space when searching for point patterns in optically tracked virtual reality applications. The method uses a predictor to estimate the future position of a point. The key idea is to define a metric that determines the quality of the predictor, and use this metric to construct a 3D region around the predicted position of each point. The size and shape of the 3D region is based on the kinematic properties of the predicted point. The 3D r ...

**Keywords:** feature detection, optical tracking, search spaces.

### 3 [View planning for automated three-dimensional object reconstruction and inspection](#)



William R. Scott, Gerhard Roth, Jean-François Rivest

 March 2003 **ACM Computing Surveys (CSUR)**, Volume 35 Issue 1

Publisher: ACM Press

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 Terms used **optical paper positioning**

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### 1 [Magneto-optical data storage](#)



Terry McDaniel

 November 2000 **Communications of the ACM**, Volume 43 Issue 11

Publisher: ACM Press

Full text available: pdf(397.56 KB)

html(34.62 KB)

 Additional Information: [full citation](#), [references](#), [index terms](#)

### 2 [Processing images and video for an impressionist effect](#)



Peter Litwinowicz

 August 1997 **Proceedings of the 24th annual conference on Computer graphics and interactive techniques**

Publisher: ACM Press/Addison-Wesley Publishing Co.

Full text available: pdf(3.62 MB)

 Additional Information: [full citation](#), [references](#), [citations](#)

### 3 [A volumetric method for building complex models from range images](#)



Brian Curless, Marc Levoy

 August 1996 **Proceedings of the 23rd annual conference on Computer graphics and interactive techniques**

Publisher: ACM Press

Full text available: pdf(755.30 KB)

 Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** isosurface extraction, range image integration, surface fitting, three-dimensional shape recovery

### 4 [Emancipated pixels: real-world graphics in the luminous room](#)



John Underkoffler, Brygg Ullmer, Hiroshi Ishii

 July 1999 **Proceedings of the 26th annual conference on Computer graphics and interactive techniques**

Publisher: ACM Press/Addison-Wesley Publishing Co.

Full text available: pdf(613.18 KB)

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# 1 ["I'm waiting where we met last time": exploring everyday positioning practices to](#)


[inform design](#)

Alexandra H. Weilenmann, Peter Leuchovius

 October 2004 **Proceedings of the third Nordic conference on Human-computer interaction NordiCHI '04**

Publisher: ACM Press

 Full text available: [pdf\(256.63 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

In light of recent attempts to design location-based mobile services, we present findings from a study of the ways in which positioning is done in everyday talk over the mobile phone. We show that a location is more than a coordinate on a map, and give examples of how people formulate location in a number of different ways according to the particulars of the activity. Based on these findings, we argue that rather than delivering location information in the form of geographical coordinates, lo ...

**Keywords:** conversation analysis, location-based services, mobile phones, mobility, position-based services

## 2 [Robust annotation positioning in digital documents](#)



A. J. Bernheim Brush, David Barger, Anoop Gupta, J. J. Cadiz

 March 2001 **Proceedings of the SIGCHI conference on Human factors in computing systems**

Publisher: ACM Press

 Full text available: [pdf\(397.50 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Increasingly, documents exist primarily in digital form. System designers have recently focused on making it easier to read digital documents, with annotation as an important new feature. But supporting annotation well is difficult because digital documents are frequently modified, making it challenging to correctly reposition annotations in modified versions. Few systems have addressed this issue, and even fewer have approached the problem from the users' point of view. This paper reports ...

**Keywords:** annotation, annotation system design, digital, documents, robust

3

## [Two-dimensional spatial positioning as a means for reflection in design](#)




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 Terms used **paper coded position**

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# 1 [Coding polygon meshes as compressable ASCII](#)



Martin Isenburg, Jack Snoeyink

 February 2002 **Proceeding of the seventh international conference on 3D Web technology**

Publisher: ACM Press

Full text available: pdf(472.45 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Because of the convenience of a text-based format 3D content is often published in form of a gzipped file that contains an ASCII description of the scene graph. While compressed image, audio, and video data is kept in separate binary files, polygonal data is usually included uncompressed into the ASCII description, as there is no widely-accepted standard for compressed polygon meshes. In this paper we show how to incorporate compression of polygonal data into a purely text-based scene graph descr ...

**Keywords:** ASCII scene descriptions, fast and extremely light-weight decoding, mesh compression, non-manifold mesh encoding

# 2 [Highly scalable image coding for multimedia applications](#)



Jie Liang

 November 1997 **Proceedings of the fifth ACM international conference on Multimedia**

Publisher: ACM Press

Full text available: pdf(1.54 MB)

 Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

# 3 [Proceedings of the SIGNUM conference on the programming environment for development of numerical software](#)


 March 1979 **ACM SIGNUM Newsletter**, Volume 14 Issue 1

Publisher: ACM Press

Full text available: pdf(5.02 MB)

 Additional Information: [full citation](#)

# 4 [Learning dependency translation models as collections of finite-state head transducers](#)



Hiyan Alshawi, Shona Douglas, Srinivas Bangalore

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